gaseous etchant [containing] comprising chlorine, bromine, or a compound thereof [after the metallic film is selectively covered with the mask made of a resist]; and

a second step of removing the mask used in said etching by ashing [using] by contacting said mask with a plasma generated in an atmosphere comprising oxygen gas and water vapor, and

thereby removing chlorine, bromine, or a compound thereof which are components of the gaseous etchant that remains on a surface of the metallic film exposed as a result of said removing of the mask, [by forcing] said removing of the gaseous etchant components including using the plasma to force the gaseous etchant compounds to be released from the substrate.

3. (Twice Amended) The method according to claim 2, [wherein] further comprising the step of: providing a barrier layer [for blocking a reaction] between the metallic film and the substrate [is provided] so as to prevent a reaction between the metallic film and the substrate.

5. (Twice Amended) The method according to claim 1, wherein during said second step, said removing of the mask and said removing of chlorine, bromine, or a compound thereof which are components of the gaseous etchant [the metallic film exposed as the result of said removing of the mask are exposed to] each include using neutral active species extracted from the plasma.

Claim 7, line 5 delete "containing" and insert therefor --comprising--.

11. (Twice Amended) A method for producing semiconductor integrated circuits, comprising the steps of:

a first step of selectively etching a metallic film exposed through a mask by [using] contacting said metallic film exposed through said mask with a gaseous etchant [containing] comprising chlorine, bromine, or a compound thereof after the metallic film formed on a surface of a substrate is selectively covered with the mask made of a resist;

a second step of removing the mask used in said etching by ashing [using] by effectively contacting said mask with a first plasma generated in [an] a first atmosphere [containing] comprising oxygen gas; and

a third step of removing chlorine, bromine, or a compound thereof, which are components of [a] residual etchant on a surface of the metallic film which have become exposed as the result of said removing of the mask, said step of removing the residual etchant components including [using] contacting said metallic film with a second plasma generated in [an] a second atmosphere [containing] comprising water vapor thereby forcing the residual etchant components to be released from the [substrate] surface of said metal.

16. (Twice Amended) The method according to claim 11, [wherein] further comprising the step of: providing a barrier layer

[for blocking the reaction] between the metallic film and the substrate [is provided] so as to prevent a reaction between the metallic film and the substrate.

20. (Twice Amended) An apparatus for producing semiconductor integrated circuits, comprising:

an etching chamber having [etching] means for selectively etching a metallic film formed on a substrate, [and] which is partially covered with a mask formed of a resist, [the] and means for introducing an etching means [incorporating] comprising a gaseous etchant [containing] comprising chlorine, bromine, or a compound thereof into effective contact with said exposed metallic film;

an ashing chamber having [ashing] means for ashing the mask formed on the substrate, said ashing chamber being connected through a first load lock chamber, which is capable of making a vacuum, to said etching chamber, wherein said ashing means [incorporating] comprises means for generating a first plasma [generated in an] from a first atmosphere [containing] comprising oxygen gas and means to contact said plasma with the mask under conditions sufficient [so as] to remove the mask; and

an after-treatment means comprising a chamber, [including after-treatment] means for removing residual chlorine, bromine, or a compound thereof which has become exposed on a surface of the metallic film on the substrate by the ashing of said mask, said after-treatment chamber being connected to said ashing chamber through a second load lock chamber which is capable of

making a vacuum, [said after-treatment] means [incorporating] for generating a second plasma [generated in an] from a second atmosphere [containing] comprising water vapor, and means for introducing a gas containing water vapor into said second plasma generating means.

21. (Twice Amended) The apparatus according to claim 20, wherein said after-treatment chamber further includes

[a plasma generating section into which gas containing water vapor is introduced and into which a plasma generating means for generating a plasma in the gas is connected and]

a treatment section which is connected to the second plasma generating [section] means, [and] wherein said second plasma generating means and treatment [sections] section are [being] divided from each other by a division wall [in which are defined small] having openings therein through which neutral active species in [a] the second plasma pass, and on which the substrate is placed.

22. (Twice Amended) The apparatus according to claim 20, [wherein] including means for introducing the gas containing water vapor [is introduced into] into said after-treatment chamber with the substrate placed therein, and wherein said after-treatment chamber has substantially parallel flat-plate type electrodes disposed on both sides of the substrate with the substrate located